Incidental Harassment Authorization
Final Marine Mammal Monitoring Report for
August 2015 to August 2016

Washington State Department of Transportation
Ferries Division

Anacortes Tie-up Slip Project
June 27, 2016

Washington State Ferries

Washington State Department of Transportation

Submitted To:

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Cover: Minke whale 'Nick Jagger' photographed May 26, 2013 at Salmon Bank, San Juan Islands. Photo by Jill Hein. NE Pacific Minke Whale Project.

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1.0 Monitoring Results

The Anacortes Tie-up Slip Project began November 11, 2015 and was completed February 9, 2016. Table 1-1 provides a summary of species observed, permitted Level B takes and observed Level B takes.

Table 1-1 Level B Acoustical Harassment Take Summary

Species	Number Observed	Permitted Take	Observed Take
Harbor Seal	155	900	63
California Sea Lion	9	180	2
Steller Sea Lion	2	360	1
Northern Elephant Seal	0	72	0
Harbor Porpoise	51	612	15
Dall's Porpoise	0	108	0
SR Killer Whale	0	4	0
Transient Killer Whale	4	70	0
Pacific White-sided Dolphin	0	360	0
Gray Whale	0	36	0
Humpback Whale	0	30	0
Minke Whale	0	10	0

2.0 Description of the Activity

2.1 Introduction

The purpose of this project at the Anacortes ferry terminal was to replace the aging timber wingwalls and dolphins in Tie-up Slips 3 and 4 with standard steel and concrete designs. This allows the ferries to safely moor at the terminal and provides the necessary protection of the terminal from the docking of ferries.

2.2 Project Setting and Land Use

The Anacortes ferry terminal, serving State Route 20, is located in the city of Anacortes, on Fidalgo Island, adjacent to Guemes Channel, Skagit County, Washington. Guemes Channel is tributary to the Georgia Basin. The terminal is located in Section 22, Township 35 North, Range 1 East (Figure 2-1). This is the primary terminal for all WSF ferry departures to the San Juan Islands and B.C.'s Vancouver Island. Land use in the area is a mix of residential, business, and local parks.

Figure 2-1 Vicinity Map

2.3 Project Description

The project replaced the aging timber wingwalls and dolphins in Tie-up Slips 3 and 4 with standard steel and concrete designs (Figure 2-2). The aging timber facilities were beginning to deteriorate from combined docking operations, salt water infusion and wood rot organisms. WSF re-used eight existing 36-inch steel piles and installed 52 new permanent steel piles (24-, 30-, and 36-inch) with a vibratory hammer. In addition, WSF installed one 24-inch steel

temporary pile to act as a guide to protect the ferry vessels during construction. Completed dolphins are shown in Figures 2-3 to 2-6. Approximately 30 tons of creosote-treated timber was removed from the marine environment during this project.

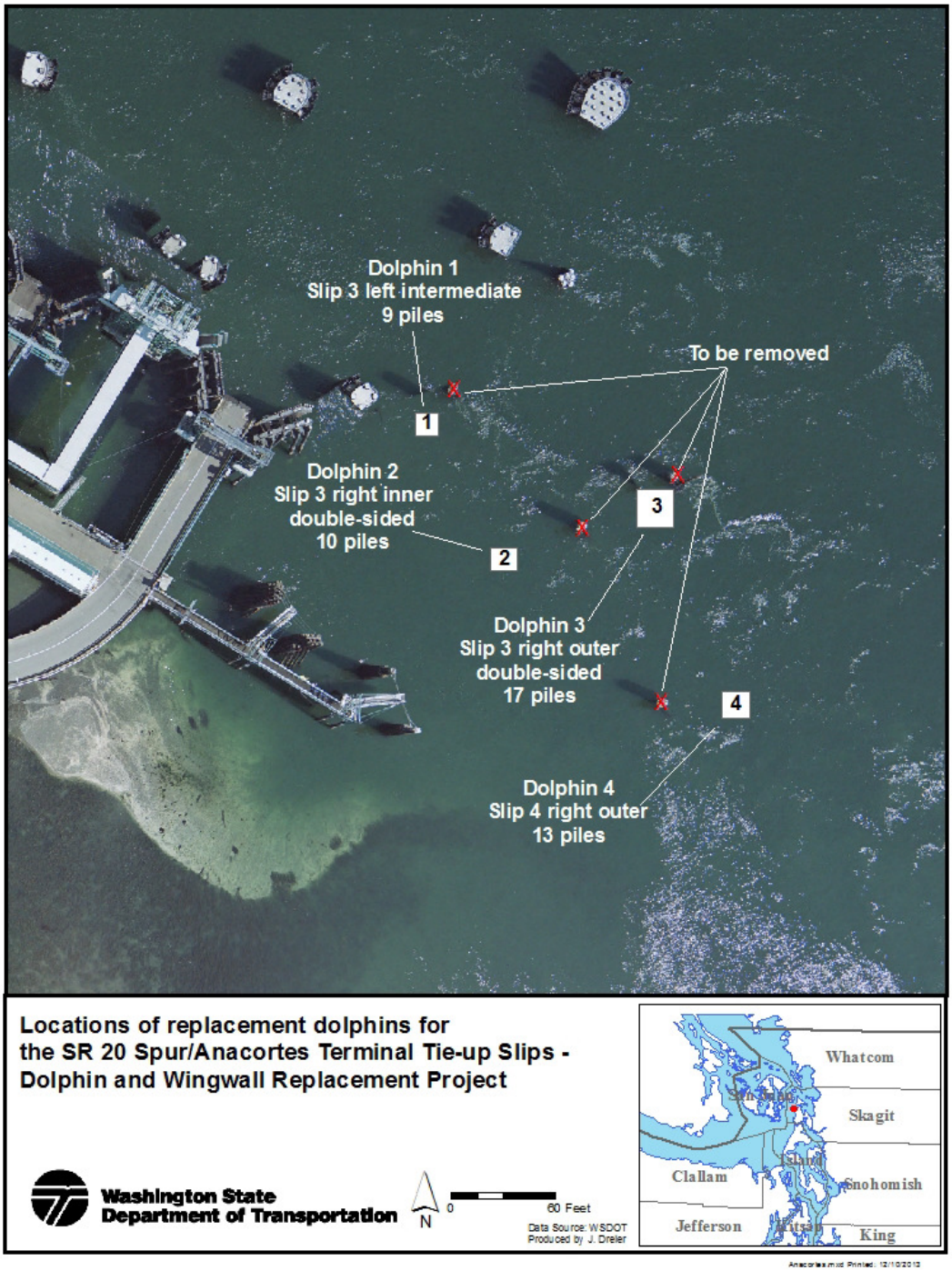

Figure 2-2 Dolphin Replacement Locations

Figure 2-3 Completed Dolphins

Figure 2-4 Completed Dolphins

Figure 2-5 Completed Dolphins

Figure 2-6 Completed Dolphins

2.4 Marine Mammal Monitoring

In accordance with the May 6, 2015, Washington State Ferries Anacortes Ferry Terminal Tie-up Slip Incidental Harassment Authorization, marine mammal monitoring was implemented during this project. Qualified Protected Species Observers (PSOs) were present on site at all times during pile removal and driving. Marine mammal behavior, overall numbers of individuals observed, frequency of observation, and the time corresponding to the daily tidal cycle were recorded.

The project included vibratory removal of and driving of timber and steel piles. For vibratory pile removal and driving, no injury occurred (SL sounds are less than 180 dB_{RMS}), and so resulted in Level B acoustical harassment ZOIs only.

For vibratory removal and driving, distances to the ZOIs are:

- 152 dB_{RMS} at 16 meters (12-inch timber pile removal) = 1.6 km/1.0 mi
- 162 dB_{RMS} at 10 meters (24-inch steel pile removal/driving) = 4.0 km/2.5 mi
- 174 dB_{RMS} at 10 meters (30-inch steel pile driving) = 26 km/16 mi
- 177 dB_{RMS} at 10 meters (36-inch steel pile removal/driving) = 40 km/25 mi

Monitoring for timber and 24-inch piles is shown in Figure 1. Monitoring for 30- and 36-inch piles is shown in Figure 2.

Measurements of in-water noise produced by vibratory driving of 36-inch steel piles were taken on November 19, 2015. Results indicated that in-water noise is not detectable at 7.4 km (4.6 miles) from the noise source. This resulted in an adjusted (reduced) 36-inch ZOI and monitoring program (Figure 3).

Monitoring to Estimate Take Levels

WSF implemented the following Marine Mammal Monitoring Plan in order to estimate project Level B acoustical harassment take levels in the ZOIs:

- To verify the required monitoring distance, the vibratory Level B acoustical harassment ZOIs were determined by using a range finder or hand-held global positioning system device.
- The vibratory Level B acoustical harassment ZOIs was monitored for the presence of marine mammals 30 minutes before, during, and 30 minutes after any pile driving activity.
- Monitoring was continuous unless the contractor took a significant break; then the 30 minutes before, during, and 30 minutes monitoring sequence began again.
- If marine mammals were observed, their location within the ZOIs, and their reaction (if any) to pile-driving activities was documented.
- During vibratory timber removal, and 24” steel vibratory pile driving and removal, one land-based PSO monitored the area from the terminal work site, and one boat with a driver and a PSO will traveled through the monitoring area (Figure 2-7).

- During 30/36" vibratory pile driving, one land-based PSO monitored the area from the terminal work site, and two boats with two drivers and two PSOs traveled through the monitoring area (Figure 2-8).
- The 30/36" ZOI monitoring project was adjusted after data was collected. One land-based PSO monitored the area from the terminal work site, and one boat with a driver and a PSO will traveled through the monitoring area (Figure 2-9).

2.4.1 Monitoring to Comply with SRKW Take Levels

Though no SRKW were present near the ZOIs during pile removal or driving, the following monitoring steps would have been implemented:

- The intent of monitoring was to prevent any take of SRKW.
- If SRKW had approached the ZOIs during vibratory pile driving, work would have been paused until the SRKW exited the ZOIs.
- If killer whale would have approached the ZOIs, and it was unknown whether they are SRKW or transient, it would have been assumed they were SRKW and work would have been paused until the whales exited the ZOIs.
- If SRKW had entered the ZOIs undetected, up to 4 'unintentional' Level B harassment takes were requested. Work would have been paused until the SRKW had exited the ZOIs to avoid further Level B harassment take.
- The four unintentional Level B harassment takes were not needed.

2.4.2 Minimum Qualifications for PSOs

- Visual acuity in both eyes (correction is permissible) sufficient for discernment of moving targets at the water's surface with ability to estimate target size and distance. Use of binoculars may be necessary to correctly identify the target.
- Advanced education in biological science, wildlife management, mammalogy or related fields (Bachelor's degree or higher) is preferred, but not required.
- Experience or training in the field identification of marine mammals (cetaceans and pinnipeds).
- Sufficient training, orientation or experience with the construction operation to provide for personal safety during observations.
- Ability to communicate orally, by radio or in person, with project personnel to provide real time information on marine mammals observed in the area as necessary.
- Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience).

Writing skills to prepare a report that includes number/type of marine mammals observed; marine mammal behavior in the area during construction, dates/times of observations; dates/times when in-water construction was conducted; dates/times when marine mammals were present near or within the ZOIs; dates/times when in-water construction was suspended to avoid SRKW take.

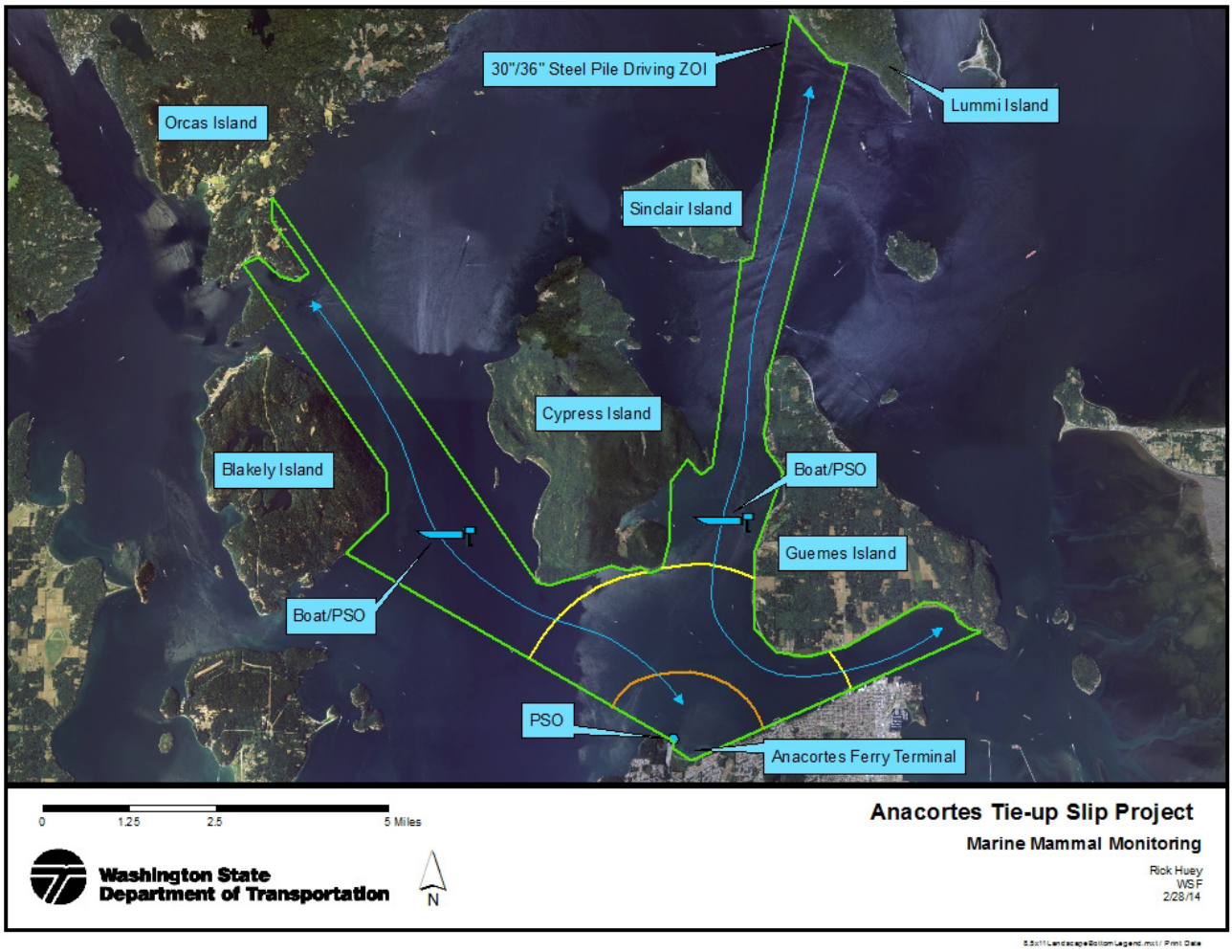

Figure 2-7 Timber and 24" Steel Marine Mammal Monitoring

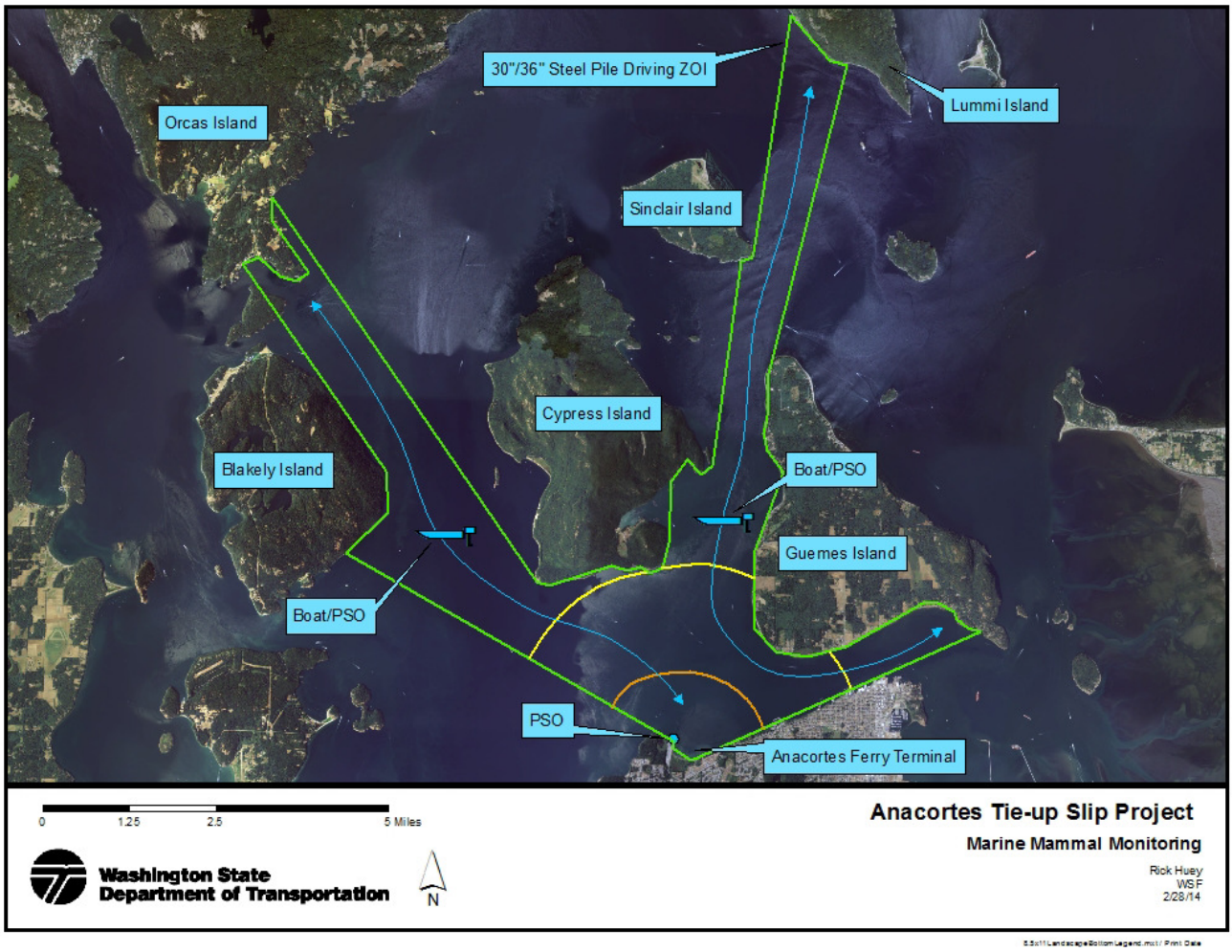

Figure 2-8 30/36" Marine Mammal Monitoring

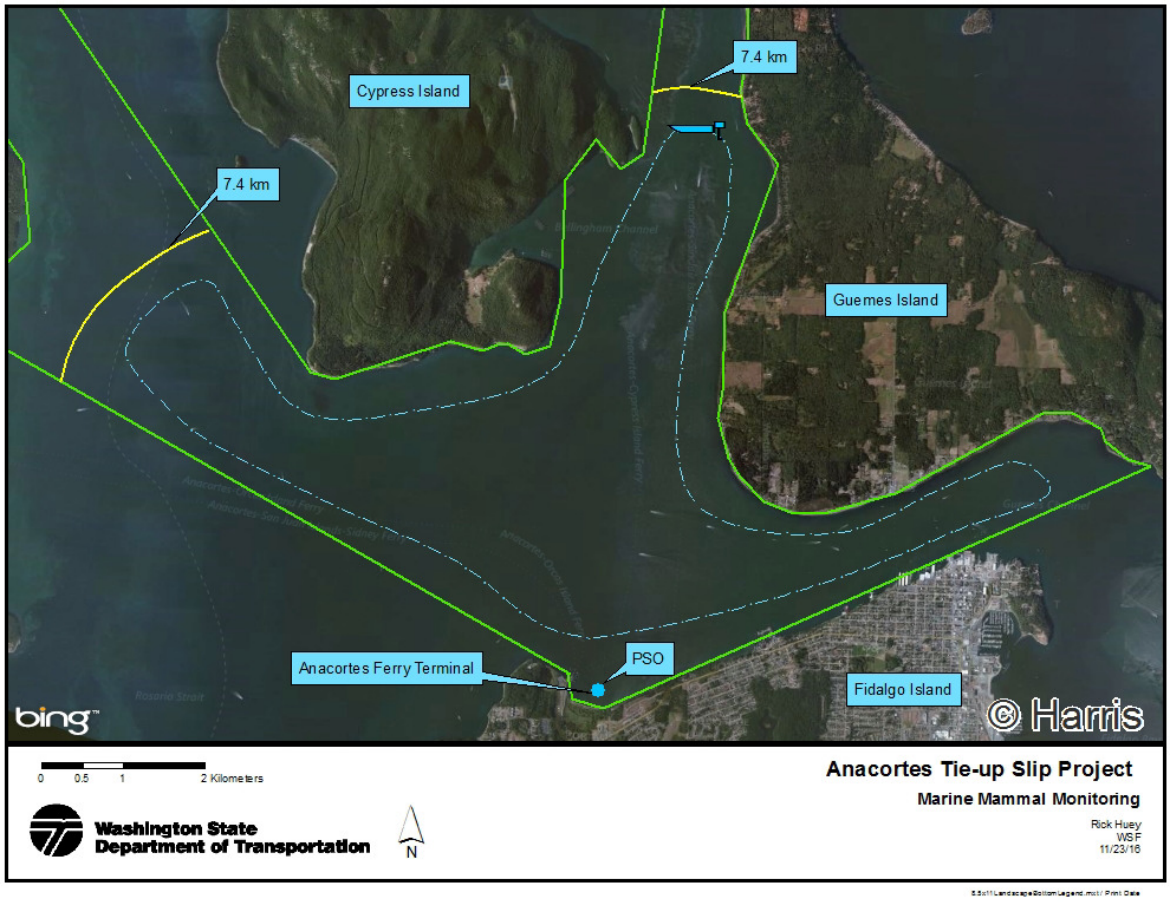

Figure 2-9 30/36" Adjusted Marine Mammal Monitoring

Appendix: Anacortes Tie-up Slip Monitoring Observations